

## Claims

1. A biocompatible block copolymer having at least two chemically different block units obtainable by linear polycondensation of a diol with a component selected from the group of the same diol, an  $\alpha,\omega$ -dihydroxypolyester or an  $\alpha,\omega$ -dihydroxypolyether in the presence of diisocyanate, diacid halide or phosgene,  
where the diol is obtainable by transesterification of  $\alpha,\omega$ -dihydroxy-[oligo(3-(R)-hydroxybutyrate)-ethylene-oligo-3-(R)-hydroxybutyrate) with diglycolide and/or dilactide and/or caprolactone or mixtures thereof,  
the  $\alpha,\omega$ -dihydroxypolyester is obtainable by transesterification of poly-(R)-hydroxyvaleric acid or copolymers thereof with 3-hydroxyvaleric acid with ethylene glycol,  
the  $\alpha,\omega$ -dihydroxypolyether is selected from the group of  $\alpha,\omega$ -dihydroxypoly(oxytetramethylene),  $\alpha,\omega$ -dihydroxypoly(oxyethylene) and copolymers of ethylene glycol and propylene glycol.
2. The biocompatible block copolymer as claimed in claim 1, where the block copolymer is poly[poly[ $\alpha,\omega$ -dihydroxy-[oligo(3-(R)-hydroxybutyrate)-stat-glycolide)-ethylene-oligo(3-(R)-hydroxybutyrate-stat-glycolide)]alt-2,2,4-trimethylhexamethylene 1,6-diisocyanate]-co-poly-[dihydroxy[oligo-glycolide-ran- $\epsilon$ -caprolactone)-ethylene-(oligo-glycolide-ran- $\epsilon$ -caprolactone)]alt-2,2,4-trimethylenehexaethylene 1,6-isocyanate].
3. The biocompatible block copolymer as claimed in either of the preceding claims, characterized in that it is biodegradable.
4. The biocompatible block copolymer as claimed in

any of the preceding claims, characterized in that it is degradable in the human and in the animal body.

- 5     5.    The biocompatible block copolymer as claimed in  
any of the preceding claims, characterized in that  
it is melt-processible.
- 10    6.    The biocompatible block copolymer to any of the  
preceding claims, obtainable by linear co-  
condensation with further low molecular weight  
compounds having additional functional groups.
- 15    7.    The biocompatible block copolymer as claimed in  
claim 6, characterized in that it comprises  
chemically bonded pharmaceutical active substances  
or diagnostics.
- 20    8.    A shaped article comprising a biocompatible block  
copolymer as claimed in any of the preceding  
claims.
- 25    9.    A medical or veterinary medical implant comprising  
a biocompatible block copolymer as claimed in any  
of the preceding claims.
- 30    10.   An implant as claimed in claim 9, characterized in  
that it has a porous structure.
- 35    11.   The implant as claimed in either of claims 9 or 10  
in the form of a tube having one or more channels.
12.   The implant as claimed in either of claims 9 or 10  
in the form of a heart valve.
13.   A surgical aid intended to be fixed in and on the  
human or animal body, comprising the biocompatible  
block copolymer as claimed in any of the preceding  
claims.

14. The diol as claimed in claim 1, obtainable by transesterification of  $\alpha,\omega$ -dihydroxy-[oligo(3-(R)-hydroxybutyrate)-ethylene-oligo-(3R)-hydroxybutyrate) with diglycolide.
15.  $\alpha,\omega$ -Dihydroxy-[oligo(3-R-hydroxybutyrate)-stat-glycolide)-ethylene-oligo-(3R)-hydroxybutyrate-stat-glycolide) as diol as claimed in claim 14.
16. A process for preparing a diol as claimed in claim 14, characterized in that  $\alpha,\omega$ -dihydroxy-[oligo(3-R-hydroxybutyrate)-ethylene-oligo-3-(R)-hydroxybutyrate) is reacted with diglycolide and/or dilactide and/or caprolactone or mixtures thereof.
17. The process as claimed in claim 16, characterized in that the reaction is carried out in the presence of a catalyst.
18. The process as claimed in either of claims 16 or 17, characterized in that the diol is dissolved in methylene chloride for purification, and impurities are removed.